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PATENT SPECIFICATION

DRAWINGS ATTACHED

882,038

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No. 13181/60.

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Index at acceptance:—Class 44, BE4D.

International Classification:—F06b.

COMPLETE SPECIFICATION

Improvements in Clamps

I, EDWARD OHLSON, a Swedish subject, of 55, Göketorpsgatan, Gothenburg, Sweden, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The present invention relates to clamps of the kind produced by bending transversely an elongated sheet-metal blank formed with identical, preferably circular, apertures which in the bent condition of the blank are parallel and aligned, there being formed in the intermediate portion of the blank a slot interconnecting said apertures and having its delimiting edges disposed in spaced interrelation.

Clamps of the kind referred to are used as pipe clamp, for instance when mounting exhaust pipes in motor cars. In its bent condition such a clamp, in essence, has the configuration of a split ring having at the location of the bend a U-shaped channel interrupted by the slot or ring gap. The clamp can be compressed by means of a screw bolt passed through said channel and a nut received on the bolt.

In prior art clamps of the kind referred to the slot formed in the blank and interconnecting the apertures therein is disposed, prior to the bending thereof, symmetrically relative to a straight line interconnecting the centres of the apertures, so that, upon clamping the clamp formed by bending the metal blank about the pipe, the portion of the circumference of the pipe opposite the slot will not be subjected to any clamping action. Due to this, upon tightening the clamp a deformation of said portion will tend to result, causing the same to be squeezed out into the slot.

The present invention has for its object to overcome the drawback referred to and is mainly characterised in that, in the unbent condition of the metal blank, the ends of the slot are situated on either side, respectively, of an imaginary straight line interconnecting the centres of the apertures.

Further according to the invention, each one of the edges delimiting the slot suitably has the configuration of a slightly S-shaped curve having its end portions extending in parallel, or approximately parallel, relation to the line interconnecting the centres of the apertures.

The lateral edges of the intermediate portion of the blank, being usually substantially straight-lined and parallel to the longitudinal direction of the blank, according to a preferred embodiment of the invention may be formed with end portions curved obliquely inward towards the imaginary straight line interconnecting the centres of the apertures.

In one particular embodiment of the invention, the apertures are formed with edge flanges which in the bent condition of the blank are directed towards each other and which are suitably of a depth such as to cause their extreme edges to abut.

The invention will be described hereinafter with reference to the accompanying drawings which illustrate two embodiments thereof by way of example, and in which:—

Figure 1 is a plan view of a blank for a clamp according to the invention;

Figure 2 shows a clamp produced by transversely bending a blank according to Figure 1;

Figure 3 is an edge elevational view of the clamp shown in Figure 2;

Figures 4, 5 and 6 are projections corresponding respectively to Figures 1 to 3 and showing a clamp according to another embodiment of the invention; and

Figure 7 is a cross-section through the clamp substantially along the line VII—VII in Figure 5.

The blank shown in Figure 1 and serving for forming the clamp illustrated in Figures 2 and 3, consists of an elongated piece or strip of sheet metal which is formed near its ends with identical, circular apertures 1. The intermediate portion 2 of the strip situated between

the apertures 1 is formed with a slot 3 interconnecting the two apertures and having its mutually spaced edges 4 slightly S-shaped and extending from one aperture 1 to the other in a manner to cause the end portions of the slot to be disposed on either side respectively, of a line A—A interconnecting the centres of the apertures. The clamp shown in Figures 2 and 3 has been formed by bending the intermediate portion 2 of the blank shown in Figure 1 along a line perpendicular to the line A—A, so as to cause the apertures 1 in the thus bent condition of the metal strip —in which its end portions extend in spaced parallel interrelation-to be coaxially aligned. The two lateral edges 5 of the intermediate portion 2 which are substantially parallel to the longitudinal direction of the strip blank, are formed with end portions 6 which are curved obliquely inward towards the line A—A.

The parts of the intermediate portion 2 disposed on either side of the slot 3 form, in the bent condition of the blank, coaxially aligned channels through which a screw bolt 7 indicated in broken lines in Figure 2 is intended to be passed. Received on the end of bolt 7 is a nut 8 adapted, after the clamp has been placed around a pipe not shown in the drawings, to be tighened to move the parts of the intermediate portion 2 disposed on either side of the slot 3 towards each other, whereby the clamp is clamped about the pipe. Owing to a slight overlap, as seen in the axial direction of the clamp apertures 1, between the edge portions of the apertures 1 disposed adjacent the edges of the slot 3 intersecting line A—A (see Figure 2), a pipe on which the clamp is mounted will be completely encircled by the clip, so that there will be no danger of deformation of the pipe upon tightening of the clamp.

In the embodiment shown in Figures 4 to 7 each of the apertures 1 is formed with a bent-off edge portion 9 forming an edge flange extending along the edge of the aperture and projecting at right-angles to the plane of the aperture. The edge flanges 9 are directed towards each other and abut along their extreme edges so as to form between the pipe-receiving apertures a sleeve-like portion, thus resulting in a larger pipe engaging surface being established than in the simpler embodiment shown in Figures 1 to 3.

WHAT WE CLAIM IS:—

1. In a clamp of the kind produced by bending transversely an elongated sheet metal blank formed with identical, preferably circular, apertures which in the bent condition of the blank are parallel and aligned, there being formed in the intermediate portion of the blank a slot interconnecting said apertures and having its delimiting edges disposed in spaced inter-relation: an arrangement which is characterised in that, in the unbent condition of the meral blank, the ends of the slot are situated on either side respectively of an imaginary straight line interconnecting the centres of the apertures.

2. A clamp according to Claim 1 characterised in that each of the edges delimiting the slot has the configuration of a slightly S-shaped curve having its end portions extending in parallel, or approximately parallel, relation to the imaginary line interconnecting the centres of the apertures.

3. An arrangement according to Claim 1 or 2, in which the two lateral edges of the intermediate portion are substantially straight-lined and parallel to the longitudinal direction of the metal blank, characterised in that the end portions of the said lateral edges are curved obliquely inward towards the imaginary line interconnecting the centres of the apertures.

4. A clamp according to any one of the preceding claims, characterised in that the apertures are formed with edge flanges which in the bouble bent condition of the metal blank are directed towards each other.

5. A clamp according to Claim 4, characterised in that the extreme edges of the flanges in the bent condition of the metal blank abut one another.

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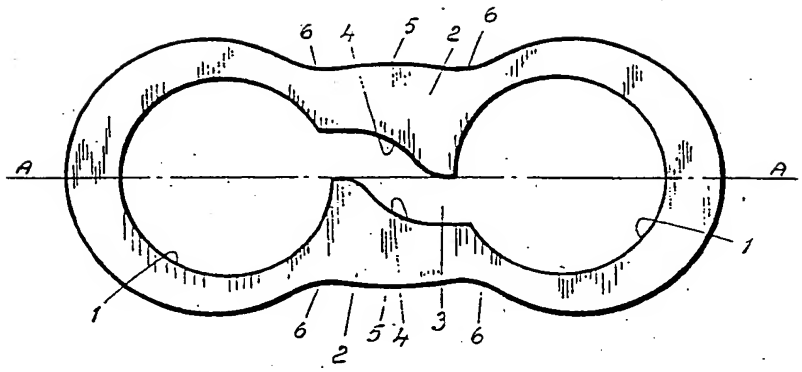
Fig. 1



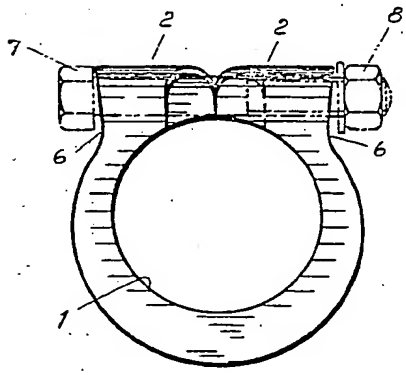


Fig. 2

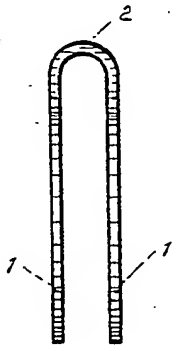


Fig. 3

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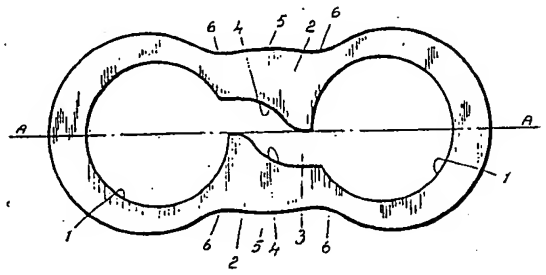
Sheets 1 & 2

Fig. 1



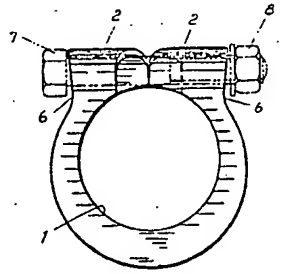


Fig. 2

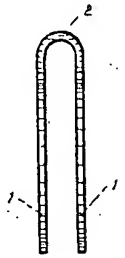


Fig. 3

Fig. 4

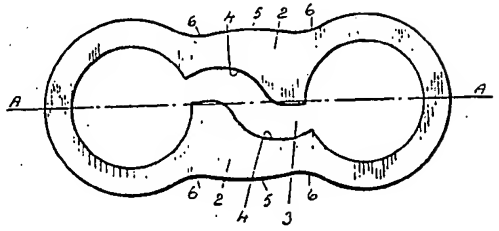


Fig. 5

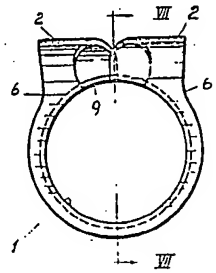
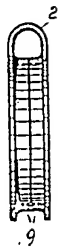


Fig. 6



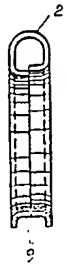


Fig. 7

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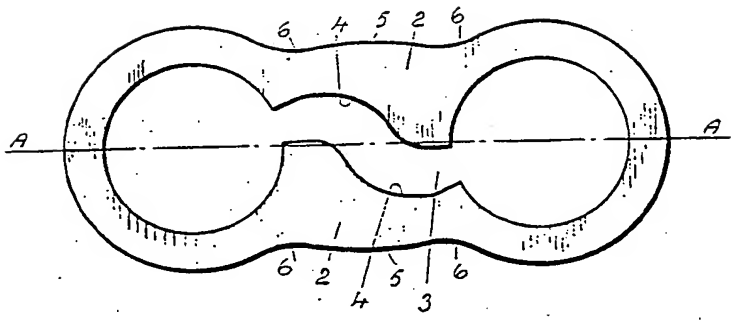
Fig. 4



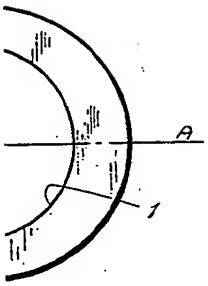


Fig. 5

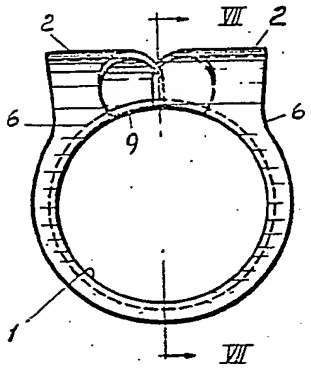


Fig. 6

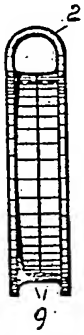


Fig. 3

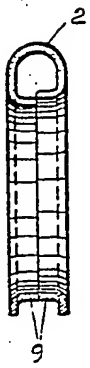


Fig. 7